College of the Holy Cross, Spring Semester, 2017
Math 242, Sections 01 and 02 (Professor Hwang)
Course Information Sheet

Contact Information

Office: 339 Swords Hall
Office Hours: M 10–10:50, W 10–11:50, or by appt.
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Introduction

In *Principles of Analysis*, we'll develop the calculus of one variable from basic assumptions about the real number system. The course emphasizes concepts, precise statements, and logical reasoning ("proofs"). **These are not incidental details, but the very heart of the course.** It is normal to have difficulty adjusting to new expectations and ways of thinking, differing emphasis, and the pace at which new ideas are introduced. However, with steady work, you will experience moments of clarity as pieces of the course fall together.

The most important action you can take is to **keep up with the course**: Read ahead, come to class with questions, have a serious look at each problem set the day it is handed out, and visit me in office hours. Do not wait a week to see me if you start to fall behind; much more so than in earlier courses, the material of *Principles* builds on itself. The abstract nature and rapid pace of the course put stringent demands on you.

Academic Honesty

The problem sets are your chance to work through ideas and course concepts in a low-risk setting. **It's far more important to learn from your mistakes on the problem sets than it is to get a high score on each assignment.** Please treat written work accordingly. Don't mindlessly mimic your classmates' work just for the sake of getting a few more homework points. This bad habit will come back to bite you on the midterms.

You are welcome to engage in *honest collaboration* with your classmates on the problem sets. Specifically, write up the first draft of each problem set **entirely on your own**. Let the ideas sit for a day or two. Then meet with one or two classmates and compare your **ideas**.

Do not exchange written work with classmates; doing so constitutes *dishonest collaboration*. As noted above, this bad habit will also harm your course grade in the long run.

A more complete statement may be found on the problem set page:

`http://mathcs.holycross.edu/~ahwang/teach/242/prob.html`

Grading

Problem sets (20%), midterm tests ($2 \times 25 = 50\%$), final exam (30%).

Problem Sets Problem sets will be posted each Friday, and are due the following Friday at the beginning of class. Late problem sets will not be marked for grading, but should be turned in for commenting. You are welcome to turn in your write-up Wednesday for "pre-grading": I'll make comments and return the paper to you by Thursday so you can make changes if necessary.

Midterm Tests There are two in-class midterm tests, scheduled for Friday, March 3 and Wednesday, April 12. If you have a midterm conflict due to an athletic event, illness, or a family emergency, notify me and your Class Dean immediately.

Final Exam The cumulative final exam is worth 30% of the course grade. The final exam schedule will be announced around the second week of classes. **Do not make travel plans that conflict with the midterms or final exam!**

Meeting Schedule

Deviations from this schedule will be announced by email or in class.

W	Jan 25	Section 1.4	Sets of Real numbers
F	Jan 27	Section 2.1-2.2	The Real Numbers
M	Jan 30	Section 2.3-2.4	Order Properties, Exponentiation
W	Feb 1	Section 2.5	The Triangle Inequalities
F	Feb 3	Section 3.1	Intervals
M	Feb 6	Section 3.3	Upper and Lower Bounds
W	Feb 8	Section 3.3	Suprema and Infima
F	Feb 10	Section 3.4	Topology
M	Feb 13	Section 4.1	Sequences and Limits
W	Feb 15	Section 4.1	Properties of Limits
F	Feb 17	Section 4.1	Inequalities, Infinite Limits
M	Feb 20	Section 4.2	Subsequences
W	Feb 22	Section 4.3	Cauchy Sequences
F	Feb 24	Section 4.4	Infinite Series
M	Feb 27	Section 4.4	Absolute Summability
W	Mar 1	Section 5.1	Functions
F	Mar 3		**Midterm 1**
M	Mar 13	Section 5.2	Images and Preimages
W	Mar 15	Section 5.4	Power Series
F	Mar 17	Section 6.1	Continuity
M	Mar 20	Section 6.2	Limits
W	Mar 22	Section 6.2	One-Sided Limits
F	Mar 24	Section 6.2	Calculi of Sloppiness
M	Mar 27	Section 6.3	Continuity of Power Series
W	Mar 29	Section 6.3	The Intermediate and Extreme Value Theorems
F	Mar 31	Section 7.1	Partitions and Riemann Sums
M	Apr 3	Section 7.2	Properties of the Integral
W	Apr 5	Section 7.3	Criteria for Integrability
F	Apr 7	Section 7.4	Definite Integrals
M	Apr 10	Section 7.5	Integration of Power Series
W	Apr 12		**Midterm 2**
W	Apr 19	Section 8.1	Differentiability
F	Apr 21	Section 8.2	Differentiation Rules
M	Apr 24	Section 8.3	The Mean Value Theorem
W	Apr 26	Section 9.1	The Fundamental Theorems
F	Apr 28	Section 9.2	Taylor's Theorem
M	May 1	Section 9.3	Differentiation of Power Series
W	May 3	Section 10.1	The Exponential Function
F	May 5	Section 10.2	Representations of exp
M	May 8	Section 11.1	Circular Functions